

**Drug Laboratory Yearly
Check of Secondary Weights**

Weight ID #: _____ Room _____ Date Checked _____

| Nominal Weight | *Balance Tolerance** | Uncertainty of Calibrator (100g/200g/2000g/5000g) | Ultra-Class Weight Tolerance | ASTM Class1 Tolerance | Weight Check Tolerance | Certified Weight | Lab Weight |
|----------------|-------------------------------------|---|------------------------------|-----------------------|------------------------|------------------|------------|
| 1 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 2 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 2 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 5 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 10 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 20 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 20 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 50 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 100 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 200 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 200 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 500 mg | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.005 mg | N/A | 0.249 mg/ 0.305 mg | | |
| 1 g | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.02 mg | N/A | 0.264 mg/ 0.32 mg | | |
| 2 g | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.02 mg | N/A | 0.264 mg/ 0.32 mg | | |
| 2 g | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.02 mg | N/A | 0.264 mg/ 0.32 mg | | |
| 5 g | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.02 mg | N/A | 0.264 mg/ 0.32 mg | | |
| 10 g | Mettler AB104/204 0.2 mg | 0.044 mg/0.1 mg | 0.03 mg | N/A | 0.274 mg/ 0.33 mg | | |
| 20 g | Mettler AB104/204 0.3 mg/ 0.2 mg | 0.044 mg/0.1 mg | 0.044 mg | N/A | 0.388 mg/ 0.288 mg | | |
| 20 g | Mettler AB104/204 0.3 mg/ 0.2 mg | 0.044 mg/0.1 mg | 0.044 mg | N/A | 0.388 mg/ 0.288 mg | | |
| 50 g | Mettler AB104/204 0.3 mg/ 0.4 mg | 0.044 mg/0.1 mg | 0.07 mg | N/A | 0.414 mg/ 0.514 mg | | |
| 100 g | Mettler AB104/204 0.3 mg/ 0.4 mg | 0.044 mg/0.1 mg | 0.15 mg | N/A | 0.494 mg/ 0.594 mg | | |
| 200 g | Mettler AB204 0.4 mg | 0.10 mg | 0.3 mg | N/A | 0.8 mg | | |
| 500 g | Mettler B3002 DR 30 mg | 1.1 mg | N/A | 1.2 mg | 32.3 mg | | |
| 1000 g | Mettler B3002 DR 200 mg | 1.1 mg | 1.5 mg | 2.5 mg | 202.6 mg/ 203.6 mg | | |
| 2000 g | Mettler B3002 DR 200 mg | 1.1 mg | 3 mg | N/A | 204.1 mg | | |
| 5000 g | Mettler PC 16 300 mg | 2.2 mg X 3= 6.6 mg | 7 mg | 12 mg | 313.6 mg/ 318.6 mg | | |

*Balance Tolerance-Mettler's R&D Division recommends tolerance stated as 2 sigma of repeatability for weights under 10% capacity and above this as 1 sigma of repeatability and 1 sigma of linearity.

** Balance Tolerance not derived using the ISO method of calculating the combined standard uncertainty and expanded uncertainty

Pass/Fail

Piro, Peter (DPH)

From: Piro, Peter (DPH)
Sent: Wednesday, March 09, 2011 6:46 PM
To: Salemi, Charles (DPH)
Subject: Yearly Weight Check

Hi, it's Peter, with a friendly reminder for QC. The following weight sets will have calibration certificates expiring in the near future or are ready for their yearly check.

| ID Number | Weights | Grade | Expiration Date |
|--------------------|----------|-----------------------|--------------------|
| | 1mg-5kg | Troemner UltraClass | September 22, 2010 |
| Primary Weight Set | | | |
| 4000010571 | 1mg-100g | Troemner UltraClass | April 9, 2010 |
| 4000010573 | 1mg-100g | Troemner UltraClass | April 9, 2010 |
| 4000010572 | 1mg-100g | Troemner UltraClass | April 9, 2010 |
| 4000010575 | 1mg-200g | Troemner UltraClass | April 10, 2010 |
| 4000010574 | 1mg-200g | Troemner UltraClass | April 10, 2010 |
| 24390 | 2000g | Troemner UltraClass | Expired |
| 15080 | 1000g | Troemner UltraClass | Expired |
| 24391 | 5000g | Troemner UltraClass | Expired |
| 18949 | 5000g | Troemner ASTM I | Expired |
| 16948 | 5000g | Troemner ASTM I | Expired |
| 6430090036 | 500g | Mettler Toledo ASTM I | No Certificate |
| 6430090037 | 500g | Mettler Toledo ASTM I | No Certificate |
| 6430090035 | 500g | Mettler Toledo ASTM I | No Certificate |
| 6430090034 | 500g | Mettler Toledo ASTM I | No Certificate |
| 6430090040 | 1000g | Mettler Toledo ASTM I | No Certificate |
| 643004002 | 1000g | Mettler Toledo ASTM I | No Certificate |
| 6430090039 | 1000g | Mettler Toledo ASTM I | No Certificate |
| 6430090038 | 1000g | Mettler Toledo ASTM I | No Certificate |



Balance Weights

Selection Guide



Weight Selection Guide

Ultra Class: For analytical and microbalances with readability as low as 1µg. These are the most precise two-piece weights available, with weight tolerances 40 to 50% better than ANSI/ASTM Class 1. Ultra Class weights combine high precision with the advantage of two-piece construction (1g and larger) to avoid costly replacement issues associated with one-piece weights.

ASTM Class 1: For analytical and microbalances having a readability of 0.01mg and 0.1mg.

ASTM Class 4: For calibration of semi-analytical balances and for student use.

ASTM Class 6 (also meets OIML Class M2): Brass weights commonly used by students.

NIST Class F: Used primarily to test commercial weighing devices. Also acceptable for verifying scales that have a 0.1% accuracy or lower.

Other Classes Available: ANSI/ASTM Class 2 and Class 3, as well as OIML E2 and F1 are also available. Contact your VWR sales representative for information.

To select the proper weight/weight set for a balance, it is recommended that the tolerance of the weight (or largest weight in a set) be three times more accurate than the readability of the balance. Consult a tolerance chart to determine which class is needed. In some cases, the recommended 3-to-1 accuracy ratio is not achievable. For these cases, Troemner Ultra Class weights are recommended, with a NIST/NVLAP or a Traceable Weight Calibration Certificate. These Certificates provide the actual mass value of each weight within the allowable tolerance, which can then be used to determine balance error from weight error.

*Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code 105013.

| International Organization of Legal Metrology Recommendation | | | TROEMNER Ultra Class | ANSI/ASTM E617 105-1 | | | | NIST Handbook | |
|--|-------|-------|-------------------------|----------------------------|-----------|-------|-------|------------------|--------|
| RIII | | | | 1 | 2 | 3 | 4 | | |
| Denomination Metric | E2 | F1 | M2 | Ind mg | Ind mg | mg | mg | | |
| mg | mg | mg | | | | | | g & mg | |
| 30 kg | | | | 45 | 75 | 150 | 300 | 600 | 3.0 g |
| 25 kg | | | | 37 | 62 | 125 | 250 | 500 | 2.5 |
| 20 kg | 30 | 100 | 3000 | 30 | 50 | 100 | 200 | 400 | 2.0 |
| 10 kg | 15 | 50 | 1500 | 15 | 25 | 50 | 100 | 200 | 1.0 |
| 5 kg | 7.5 | 25 | 750 | 7 | 12 | 25 | 50 | 100 | 500 mg |
| 4 kg | | | | 6 | | | | | |
| 3 kg | | | | 4.5 | 7.5 | 15 | 30 | 60 | 300 |
| 2 kg | 3.0 | 10 | 300 | 3 | 5.0 | 10 | 20 | 40 | 200 |
| 1 kg | 1.5 | 5 | 150 | 1.5 | 2.5 | 5.0 | 10 | 20 | 100 |
| 500 g | 0.75 | 2.5 | 75 | 0.7 | 1.2 | 2.5 | 5.0 | 10 | 70 |
| 300 g | | | | 0.45 | 0.75 | 1.5 | 3.0 | 6.0 | 60 |
| 200 g | 0.30 | 1.0 | 30 | 0.3 | 0.50 | 1.0 | 2.0 | 4.0 | 40 |
| 100 g | 0.15 | 0.5 | 15 | 0.15 | 0.25 | 0.50 | 1.0 | 2.0 | 20 |
| 50 g | 0.10 | 0.30 | 10 | 0.07 | 0.12 | 0.25 | 0.60 | 1.2 | 10 |
| 30 g | | | | 0.044 | 0.074 | 0.15 | 0.45 | 0.90 | 6.0 |
| 20 g | 0.080 | 0.25 | 8 | 0.044 | 0.074 | 0.10 | 0.35 | 0.70 | 4.0 |
| 10 g | 0.060 | 0.20 | 6 | 0.03 | 0.050 | 0.074 | 0.25 | 0.50 | 2.0 |
| 5 g | 0.050 | 0.15 | 5 | 0.02 | 0.034 | 0.054 | 0.18 | 0.36 | 1.5 |
| 3 g | | | | 0.02 | 0.034 | 0.054 | 0.15 | 0.30 | 1.3 |
| 2 g | 0.040 | 0.12 | 4 | 0.02 | 0.034 | 0.054 | 0.13 | 0.26 | 1.1 |
| 1 g | 0.030 | 0.10 | 3 | 0.02 | 0.034 | 0.054 | 0.10 | 0.20 | 0.90 |
| 500 mg | 0.025 | 0.08 | 2.5 | 0.005 | 0.010 | 0.025 | 0.080 | 0.16 | 0.72 |
| 300 mg | | | | 0.005 | 0.010 | 0.025 | 0.070 | 0.14 | 0.61 |
| 200 mg | 0.020 | 0.06 | 1.5 | 0.005 | 0.010 | 0.025 | 0.060 | 0.12 | 0.54 |
| 100 mg | 0.015 | 0.05 | | 0.005 | 0.010 | 0.025 | 0.050 | 0.10 | 0.43 |
| 50 mg | 0.012 | 0.04 | | 0.005 | 0.010 | 0.014 | 0.042 | 0.085 | 0.35 |
| 30 mg | | | | 0.005 | 0.010 | 0.014 | 0.035 | 0.070 | 0.26 |
| 20 mg | 0.010 | 0.03 | | 0.005 | 0.010 | 0.014 | 0.030 | 0.060 | 0.21 |
| 10 mg | 0.008 | 0.025 | | 0.005 | 0.010 | 0.014 | 0.030 | 0.060 | 0.17 |
| 5 mg | 0.006 | 0.020 | | 0.005 | 0.010 | 0.014 | 0.028 | 0.055 | 0.14 |
| 3 mg | | | | 0.005 | 0.010 | 0.014 | 0.026 | 0.052 | 0.12 |
| 2 mg | 0.006 | 0.020 | | 0.005 | 0.010 | 0.014 | 0.025 | 0.050 | 0.10 |
| 1 mg | 0.006 | 0.020 | | 0.005 | 0.010 | 0.014 | 0.025 | 0.050 | 0.10 |

Drug Analysis Laboratory
Quality Control – Balances
2011

Name/Model: Mettler PC 16

Manufacturer's Tolerance:

0 – 1650g = +/- 0.2g

Serial #: C30676

1651 – 16,500g = +/- 0.3g

Location: Rm 362

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|------------------------|-------------------|------------------|-----------------|-----|-----|-----|-----|-----|------|-----|-----|-----|
| Day | 28 | 26 | 31 | | | | | | | | | |
| Chemist | P.O. | P.P. | P.P. | | | | | | | | | |
| | | | | | | | | | | | | |
| 1.0g | 1.0 | 1.0 | 1.0 | | | | | | | | | |
| 100.0g | 100.0 | 100.0 | 100.0 | | | | | | | | | |
| 1000.0g | 1000.1 | 1000.2 | 1000.1 | | | | | | | | | |
| 5000.0g | 5000.1 | 5000.1 | 5000.1 | | | | | | | | | |
| 10,000.0g | 10,000.0 | 10,000.0 | 9999.9 | | | | | | | | | |
| 15,000.0g | 15,000.0 | 15,000.0 | 14,999.7 | | | | | | | | | |
| | | | | | | | | | | | | |
| Sensitivity | | | | | | | | | | | | |
| 100.0g and 50.0g | 100.0 | 100.0 | 100.0 | | | | | | | | | |
| | 100.0 | 100.0 | 100.0 | | | | | | | | | |
| QC Review | ✓ QSD 02-14-11 | ✓ QSD 3-14-11 | ✓ QSD 4-7-11 | | | | | | | | | |
| QA Review | | | | | | | | | | | | |

Drug Analysis Laboratory
Quality Control – Balances
2011

Name/Model: Mettler B3002 DR

Serial #: 1117441268

Location: Rm 363

Manufacturer's Tolerance:

0 – 60g = +/- 0.02g
 61 – 600 = +/- 0.03g
 601 – 3100 = +/- 0.2g

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|--------------------------|-------------------|------------------|------------------|-----|-----|-----|-----|-----|------|-----|-----|-----|
| Day | 1/25 | 2/28 | 3/30 | | | | | | | | | |
| Chemist | PF | PF | PF | | | | | | | | | |
| 0.10g | 0.10g | 0.09g | 0.10g | | | | | | | | | |
| 1.00g | 1.00g | 1.00g | 1.00g | | | | | | | | | |
| 10.00g | 10.00g | 10.00g | 10.00g | | | | | | | | | |
| 100.00g | 100.00g | 100.00g | 100.00g | | | | | | | | | |
| 1000.0g | 1000.0g | 1000.0g | 1000.0g | | | | | | | | | |
| 3000.0g | 3000.0g | 3000.0g | 3000.0g | | | | | | | | | |
| Sensitivity | 100.00g | | | | | | | | | | | |
| 100.00g and 50.00g | 100.00g | 100.00g | 100.00g | | | | | | | | | |
| QC Review | ✓ ASS 02-14-11 | ✓ ASS 3-15-11 | ✓ ASS 4-07-11 | | | | | | | | | |
| QA Review | | | | | | | | | | | | |

Drug Analysis Laboratory
Quality Control – Balances
2011

Name/Model: Mettler AB 204

Serial #: 1117461624

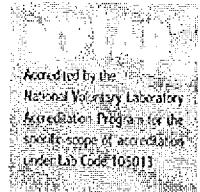
Location: Rm 363

Manufacturer's Tolerance:

0 – 21g = +/- 0.0002g

22 – 210g = +/- 0.0004g

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|-----------------------------|----------------------|----------------------|--------------------|-----|-----|-----|-----|-----|------|-----|-----|-----|
| Day | 25 | 28 | 30 | | | | | | | | | |
| Chemist | JLP | JLP | ASD | | | | | | | | | |
| 0.0100g | 0.0100g | 0.0099g | 0.0100 | | | | | | | | | |
| 0.1000g | 0.1000g | 0.1000g | 0.1000 | | | | | | | | | |
| 1.0000g | 1.0000g | 1.0000g | 1.0000 | | | | | | | | | |
| 50.0000g | 50.0000g | 49,9999g | 50.0000 | | | | | | | | | |
| 100.0000g | 100.0000g | 100.0000g | 100.0000 | | | | | | | | | |
| 200.0000g | 200.0000g | 200.0000g | 200.0000 | | | | | | | | | |
| <hr/> | | | | | | | | | | | | |
| Sensitivity | | | | | | | | | | | | |
| 50.0000g and 10.0000g | 50.0000g 49,9999g | 49.9999g 49,9999g | 50.0000 50.0000 | | | | | | | | | |
| QC Review | ✓ QSC 02-14-11 | ✓ QSC 3-14-11 | ✓ QSC 4-7-11 | | | | | | | | | |
| QA Review | | | | | | | | | | | | |



Calibration Certificate

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Page 1 of 11 Pages

Weight

ID Number

Certificate Number

Date of Calibration 22-SEP-2010

SECTION 1: NAME AND ADDRESS OF CUSTOMER

End user

State Lab Institute
305 South Street
Peter Piro Rm# 361
Jamaica Plain MA 02130

Client

State Lab Institute
Purchasing Rm# 208
305 South Street
Jamaica Plain MA 02130

SECTION 2: APPROVED SIGNATORY


Lynn Dickerson, Metrologist

SECTION 3: PERSON PERFORMING WORK

Melanie Cox

SECTION 4: CERTIFICATE INFORMATION

Description of Masses: ASTM Weight Set

Accuracy Class : Troemner Ultra Class *
Order Number : 53010092
Construction : One Piece, Two Piece
Material : Aluminum
: Stainless Steel
: Stainless Steel
Serial Number : 37046

Date Received : 13-SEP-2010
Date of Calibration : 22-SEP-2010
Date of Issue : 23-SEP-2010
Weight Range : 1mg, 2mg
: 5mg-500mg
: 1g-5kg

SECTION 5: ENVIRONMENTAL CONDITIONS DURING TEST

Temperature: 21.96°C

Pressure: 763.26 mm Hg

Relative Humidity: 50%

SECTION 6: PERTINENT INFORMATION

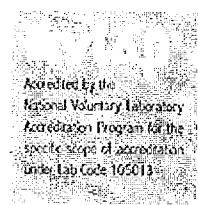
The Weights listed on this calibration report have been compared to reference mass standards that are directly traceable to the National Institute of Standards and Technology under Test No. 822/272103-05.

Reference standards and balances used to perform the calibration are listed in Section 10.

The weights calibrated for this report have been calibrated in accordance with Troemner's calibration process. The calibration performed meets Level I criteria as described in the NIST/NVLAP Technical Guide 150-2.

This calibration also meets specifications as outlined in ISO 9001, ISO/IEC 17025, ANSI/NCSL Z540-1-1994, NRC Document 10CFR50 Appendix B, and applicable documents.

* Troemner's Ultra Class is a enhanced group of weight tolerances which are 40-50% closer to nominal than ASTM E617-97 Class I



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Weight

ID Number

Certificate Number

Date of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER

End user

State Lab Institute
305 South Street
Peter Piro Rm# 361
Jamaica Plain MA 02130

Client

State Lab Institute
Purchasing Rm# 208
305 South Street
Jamaica Plain MA 02130

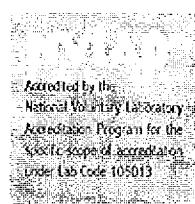
SECTION 7: TRUE MASS (MASS IN VACUUM) CALIBRATION DATA

| Nominal Mass Value | Serial Number | True Mass As Found | True Mass As Left | Density ¹ of Weight | Uncertainty (+ or -) |
|--------------------|---------------|-----------------------|----------------------|-----------------------------------|---------------------------|
| 5 kg | | 5000.0064 g | 5000.0064 g | 7.9500 g/cm ³ | 2.2 mg |
| 2 kg * | | 2000.0031 g | 2000.0031 g | 7.9500 g/cm ³ | 1.1 mg |
| 2 kg | | 2000.0021 g | 2000.0021 g | 7.9500 g/cm ³ | 1.1 mg |
| 1 kg | | 1000.00006 g | 1000.00006 g | 8.0300 g/cm ³ | 0.23 mg |
| 500 g | | 499.99996 g | 499.99996 g | 8.0300 g/cm ³ | 0.12 mg |
| 200 g * | | 199.99997 g | 199.99997 g | 8.0300 g/cm ³ | 0.10 mg |
| 200 g | | 200.00004 g | 200.00004 g | 8.0300 g/cm ³ | 0.10 mg |
| 100 g | | 99.99999 g | 99.99999 g | 8.0300 g/cm ³ | 0.044 mg |
| 50 g | | 49.999975 g | 49.999975 g | 8.0300 g/cm ³ | 0.024 mg |
| 20 g * | | 20.000000 g | 20.000000 g | 8.0300 g/cm ³ | 0.017 mg |
| 20 g | | 19.999994 g | 19.999994 g | 8.0300 g/cm ³ | 0.017 mg |
| 10 g | | 10.000001 g | 10.000001 g | 8.0300 g/cm ³ | 0.012 mg |
| 5 g | | 5.0000014 g | 5.0000014 g | 8.0300 g/cm ³ | 0.0073 mg |
| 2 g * | | 2.0000074 g | 2.0000074 g | 8.0300 g/cm ³ | 0.0053 mg |
| 2 g | | 2.0000099 g | 2.0000099 g | 8.0300 g/cm ³ | 0.0053 mg |
| 1 g | | 0.9999982 g | 0.9999982 g | 8.0300 g/cm ³ | 0.0025 mg |
| 500 mg | | 0.5000007 g | 0.5000007 g | 7.9500 g/cm ³ | 0.0025 mg |
| 200 mg *X | F | 0.1999974 g | | 7.9500 g/cm ³ | 0.0025 mg |
| 200 mg *N | | | 0.2000024 g | 7.9500 g/cm ³ | 0.0025 mg |
| 200 mg X | F | 0.1999969 g | | 7.9500 g/cm ³ | 0.0025 mg |
| 200 mg N | | | 0.2000014 g | 7.9500 g/cm ³ | 0.0025 mg |
| 100 mg X | F | 0.0999967 g | | 7.9500 g/cm ³ | 0.0025 mg |
| 100 mg N | | | 0.1000012 g | 7.9500 g/cm ³ | 0.0025 mg |
| 50 mg | | 0.0500010 g | 0.0500010 g | 7.9500 g/cm ³ | 0.0022 mg |
| 20 mg *X | F | 0.0199958 g | | 7.9500 g/cm ³ | 0.0021 mg |
| 20 mg *N | | | 0.0200008 g | 7.9500 g/cm ³ | 0.0021 mg |
| 20 mg | | 0.0199988 g | 0.0199988 g | 7.9500 g/cm ³ | 0.0021 mg |

¹ Density is assumed unless otherwise stated
* Denotes weight is marked with a dot

N Denotes new weight

28 As Found / 32 Total
X Denotes weight labeled out of tolerance



Calibration Certificate

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Weight

ID Number

Certificate Number

Date of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER
End user

 State Lab Institute
 305 South Street
 Peter Piro Rm# 361
 Jamaica Plain MA 02130

Client

 State Lab Institute
 Purchasing Rm# 208
 305 South Street
 Jamaica Plain MA 02130

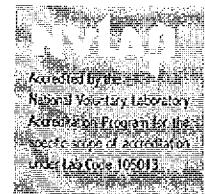
SECTION 7: TRUE MASS (MASS IN VACUUM) CALIBRATION DATA

| Nominal Mass Value | Serial Number | ----- True Mass ----- | Density ¹ of Weight | Uncertainty (+ or -) |
|--------------------|---------------|-----------------------|--------------------------------|------------------------------------|
| | | As Found | As Left | |
| 10 mg | | 0.0100010 g | 0.0100010 g | 7.9500 g/cm ³ 0.0021 mg |
| 5 mg | | 0.0050023 g | 0.0050023 g | 7.9500 g/cm ³ 0.0020 mg |
| 2 mg * | | 0.0020019 g | 0.0020019 g | 2.7000 g/cm ³ 0.0020 mg |
| 2 mg | | 0.0019984 g | 0.0019984 g | 2.7000 g/cm ³ 0.0020 mg |
| 1 mg | | 0.0009980 g | 0.0009980 g | 2.7000 g/cm ³ 0.0020 mg |

 1 Density is assumed unless otherwise stated
 * Denotes weight is marked with a dot

N Denotes new weight

 28 As Found / 32 Total
 X Denotes weight labeled out of tolerance



Calibration Certificate

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Page 4 of 11 Pages

Weight

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Date of Calibration 22-SEP-2010

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End user

 State Lab Institute
 305 South Street
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 Jamaica Plain MA 02130

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 Jamaica Plain MA 02130

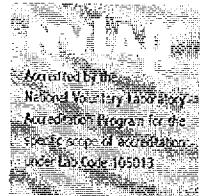
 SECTION 8: MASS IN AIR CALIBRATION VALUE VS. REFERENCE DENSITY 8000 kg m^{-3}

| Nominal Mass Value | Serial Number | ---- Conventional Mass Value ---- | | Uncertainty (+ or -) | Tolerance ^u (+ or -) |
|--------------------|---------------|-----------------------------------|--------------|----------------------|---------------------------------|
| | | As Found | As Left | | |
| 5 kg | | 5000.0017 g | 5000.0017 g | 2.2 mg | 7.0000 mg |
| 2 kg * | | 2000.0013 g | 2000.0013 g | 1.1 mg | 3.0000 mg |
| 2 kg | | 2000.0002 g | 2000.0002 g | 1.1 mg | 3.0000 mg |
| 1 kg | | 1000.00062 g | 1000.00062 g | 0.23 mg | 1.5000 mg |
| 500 g | | 500.00024 g | 500.00024 g | 0.12 mg | 0.7000 mg |
| 200 g * | | 200.00008 g | 200.00008 g | 0.10 mg | 0.3000 mg |
| 200 g | | 200.00015 g | 200.00015 g | 0.10 mg | 0.3000 mg |
| 100 g | | 100.000055 g | 100.000055 g | 0.044 mg | 0.1500 mg |
| 50 g | | 50.000003 g | 50.000003 g | 0.024 mg | 0.0700 mg |
| 20 g * | | 20.000011 g | 20.000011 g | 0.017 mg | 0.0440 mg |
| 20 g | | 20.000005 g | 20.000005 g | 0.017 mg | 0.0440 mg |
| 10 g | | 10.000007 g | 10.000007 g | 0.012 mg | 0.0300 mg |
| 5 g | | 5.0000042 g | 5.0000042 g | 0.0073 mg | 0.0200 mg |
| 2 g * | | 2.0000085 g | 2.0000085 g | 0.0053 mg | 0.0200 mg |
| 2 g | | 2.0000110 g | 2.0000110 g | 0.0053 mg | 0.0200 mg |
| 1 g | | 0.9999987 g | 0.9999987 g | 0.0025 mg | 0.0200 mg |
| 500 mg | | 0.5000002 g | 0.5000002 g | 0.0025 mg | 0.0050 mg |
| 200 mg *X | F | 0.1999972 g | | 0.0025 mg | 0.0050 mg |
| 200 mg *N | | | 0.2000022 g | 0.0025 mg | 0.0050 mg |
| 200 mg X | F | 0.1999967 g | | 0.0025 mg | 0.0050 mg |
| 200 mg N | | | 0.2000012 g | 0.0025 mg | 0.0050 mg |
| 100 mg X | F | 0.0999966 g | | 0.0025 mg | 0.0050 mg |
| 100 mg N | | | 0.1000011 g | 0.0025 mg | 0.0050 mg |
| 50 mg | | 0.0500009 g | 0.0500009 g | 0.0022 mg | 0.0050 mg |
| 20 mg *X | F | 0.0199958 g | | 0.0021 mg | 0.0050 mg |
| 20 mg *N | | | 0.0200008 g | 0.0021 mg | 0.0050 mg |
| 20 mg | | 0.0199988 g | 0.0199988 g | 0.0021 mg | 0.0050 mg |

* Denotes weight is marked with a dot

N Denotes new weight

X Denotes weight labeled out of tolerance



Calibration Certificate

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Weight

ID Number

Certificate Number

Date of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER

End user

State Lab Institute
305 South Street
Peter Piro Rm# 361
Jamaica Plain MA 02130

Client

State Lab Institute
Purchasing Rm# 208
305 South Street
Jamaica Plain MA 02130

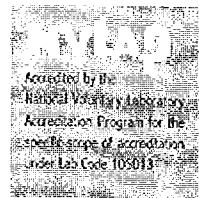
SECTION 8: MASS IN AIR CALIBRATION VALUE VS. REFERENCE DENSITY 8000 kg m⁻³

| Nominal Mass Value | Serial Number | ---- Conventional Mass Value ---- | | Uncertainty (+ or -) | Tolerance ^u (+ or -) |
|--------------------|---------------|-----------------------------------|-------------|---------------------------|--------------------------------------|
| | | As Found | As Left | | |
| 10 mg | | 0.0100010 g | 0.0100010 g | 0.0021 mg | 0.0050 mg |
| 5 mg | | 0.0050023 g | 0.0050023 g | 0.0020 mg | 0.0050 mg |
| 2 mg * | | 0.0020013 g | 0.0020013 g | 0.0020 mg | 0.0050 mg |
| 2 mg | | 0.0019978 g | 0.0019978 g | 0.0020 mg | 0.0050 mg |
| 1 mg | | 0.0009978 g | 0.0009978 g | 0.0020 mg | 0.0050 mg |

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X Denotes weight labeled out of tolerance



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Weight

ID Number

Certificate Number

Date of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER

End user

 State Lab Institute
 305 South Street
 Peter Piro Rm# 361
 Jamaica Plain MA 02130

Client

 State Lab Institute
 Purchasing Rm# 208
 305 South Street
 Jamaica Plain MA 02130

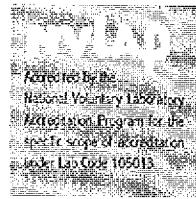
 SECTION 9: MASS IN AIR CALIBRATION DATA VS. REFERENCE DENSITY 8000 kg m⁻³

| Nominal Mass Value | Serial Number | -- Conventional Mass Correction -- | | Uncertainty (+ or -) | Tolerance ^u (+ or -) |
|--------------------|---------------|------------------------------------|------------|------------------------|-----------------------------------|
| | | As Found | As Left | | |
| 5 kg | | 1.7 mg | 1.7 mg | 2.2 mg | 7.0000 mg |
| 2 kg * | | 1.3 mg | 1.3 mg | 1.1 mg - | 3.0000 mg |
| 2 kg | | 0.2 mg | 0.2 mg | 1.1 mg | 3.0000 mg |
| 1 kg | | 0.62 mg | 0.62 mg | 0.23 mg | 1.5000 mg |
| 500 g | | 0.24 mg | 0.24 mg | 0.12 mg | 0.7000 mg |
| 200 g * | | 0.08 mg | 0.08 mg | 0.10 mg | 0.3000 mg |
| 200 g | | 0.15 mg | 0.15 mg | 0.10 mg - | 0.3000 mg |
| 100 g | | 0.055 mg | 0.055 mg | 0.044 mg - | 0.1500 mg |
| 50 g | | 0.003 mg | 0.003 mg | 0.024 mg | 0.0700 mg |
| 20 g * | | 0.011 mg | 0.011 mg | 0.017 mg | 0.0440 mg |
| 20 g | | 0.005 mg | 0.005 mg | 0.017 mg | 0.0440 mg |
| 10 g | | 0.007 mg | 0.007 mg | 0.012 mg | 0.0300 mg |
| 5 g | | 0.0042 mg | 0.0042 mg | 0.0073 mg | 0.0200 mg |
| 2 g * | | 0.0085 mg | 0.0085 mg | 0.0053 mg | 0.0200 mg |
| 2 g | | 0.0110 mg | 0.0110 mg | 0.0053 mg | 0.0200 mg |
| 1 g | | -0.0013 mg | -0.0013 mg | 0.0025 mg | 0.0200 mg |
| 500 mg | | 0.0002 mg | 0.0002 mg | 0.0025 mg | 0.0050 mg |
| 200 mg *X | F | -0.0028 mg | | 0.0025 mg | 0.0050 mg |
| 200 mg *N | | | 0.0022 mg | 0.0025 mg | 0.0050 mg |
| 200 mg X | F | -0.0033 mg | | 0.0025 mg | 0.0050 mg |
| 200 mg N | | | 0.0012 mg | 0.0025 mg | 0.0050 mg |
| 100 mg X | F | -0.0034 mg | | 0.0025 mg | 0.0050 mg |
| 100 mg N | | | 0.0011 mg | 0.0025 mg | 0.0050 mg |
| 50 mg | | 0.0009 mg | 0.0009 mg | 0.0022 mg | 0.0050 mg |
| 20 mg *X | F | -0.0042 mg | | 0.0021 mg | 0.0050 mg |
| 20 mg *N | | | 0.0008 mg | 0.0021 mg | 0.0050 mg |
| 20 mg | | -0.0012 mg | -0.0012 mg | 0.0021 mg | 0.0050 mg |

* Denotes weight is marked with a dot

N Denotes new weight

X Denotes weight labeled out of tolerance



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Weight

ID Number

Certificate Number

Date of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER

End user

 State Lab Institute
 305 South Street
 Peter Piro Rm# 361
 Jamaica Plain MA 02130

Client

 State Lab Institute
 Purchasing Rm# 208
 305 South Street
 Jamaica Plain MA 02130

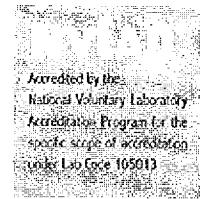
 SECTION 9: MASS IN AIR CALIBRATION DATA VS. REFERENCE DENSITY 8000 kg m⁻³

| Nominal Mass Value | Serial Number | -- Conventional Mass Correction -- | | Uncertainty (+ or -) | Tolerance ^u (+ or -) |
|--------------------|---------------|------------------------------------|------------|---------------------------|--------------------------------------|
| | | As Found | As Left | | |
| 10 mg | | 0.0010 mg | 0.0010 mg | 0.0021 mg | 0.0050 mg |
| 5 mg | | 0.0023 mg | 0.0023 mg | 0.0020 mg | 0.0050 mg |
| 2 mg * | | 0.0013 mg | 0.0013 mg | 0.0020 mg | 0.0050 mg |
| 2 mg | | -0.0022 mg | -0.0022 mg | 0.0020 mg | 0.0050 mg |
| 1 mg | | -0.0022 mg | -0.0022 mg | 0.0020 mg | 0.0050 mg |

* Denotes weight is marked with a dot

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X Denotes weight labeled out of tolerance



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Weight

ID Number

Certificate Number

Date of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER

End user

 State Lab Institute
 305 South Street
 Peter Piro Rm# 361
 Jamaica Plain MA 02130

Client

 State Lab Institute
 Purchasing Rm# 208
 305 South Street
 Jamaica Plain MA 02130

SECTION 10: CALIBRATION PROCEDURE DATA

| Nominal Mass Value | Serial Number | Standard Set No. | Cal Due | Balance Used | Cal Due | Procedure Used |
|--------------------|---------------|------------------|----------|---------------|----------|----------------|
| 5 kg | | C003 | 06/30/11 | CC10000S-104A | 11/30/10 | Multi A-B |
| 2 kg * | | C003 | 06/30/11 | CC10000S-104A | 11/30/10 | Multi A-B |
| 2 kg | | C003 | 06/30/11 | CC10000S-104A | 11/30/10 | Multi A-B |
| 1 kg | | C006 | 06/30/11 | AT1005-114A | 05/31/11 | Multi A-B |
| 500 g | | C006 | 06/30/11 | AT1005-114A | 05/31/11 | Multi A-B |
| 200 g * | | C006 | 06/30/11 | AT1005-114A | 05/31/11 | Multi A-B |
| 200 g | | C006 | 06/30/11 | AT1005-114A | 05/31/11 | Multi A-B |
| 100 g | | C008 | 06/30/11 | AT106-118B | 05/31/11 | Multi A-B |
| 50 g | | C008 | 06/30/11 | AT106-118B | 05/31/11 | Multi A-B |
| 20 g * | | C008 | 06/30/11 | AT106-118B | 05/31/11 | Multi A-B |
| 20 g | | C008 | 06/30/11 | AT106-118B | 05/31/11 | Multi A-B |
| 10 g | | C008 | 06/30/11 | AT106-118B | 05/31/11 | Multi A-B |
| 5 g | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 2 g * | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 2 g | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 1 g | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 500 mg | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 200 mg *X | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 200 mg *N | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 200 mg X | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 200 mg N | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 100 mg X | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 100 mg N | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 50 mg | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 20 mg *X | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 20 mg *N | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 20 mg | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |

* Denotes weight is marked with a dot

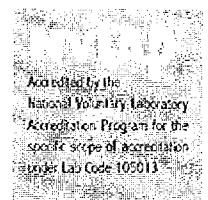
N Denotes new weight

X Denotes weight labeled out of tolerance



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Weight

ID Number

Certificate Number

Date of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER

End user

State Lab Institute
305 South Street
Peter Piro Rm# 361
Jamaica Plain MA 02130

Client

State Lab Institute
Purchasing Rm# 208
305 South Street
Jamaica Plain MA 02130

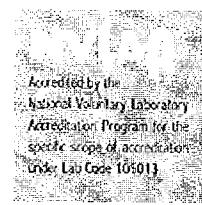
SECTION 10: CALIBRATION PROCEDURE DATA

| Nominal Mass Value | Serial Number | Standard Set No. | Cal Due | Balance Used | Cal Due | Procedure Used |
|--------------------|---------------|------------------|----------|--------------|----------|----------------|
| 10 mg | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 5 mg | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 2 mg * | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 2 mg | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |
| 1 mg | | C008A | 06/30/11 | XP6-115B | 05/31/11 | Multi A-B |

* Denotes weight is marked with a dot

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Weight

Certificate Number [REDACTED]

Date Of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER

End user

State Lab Institute
305 South Street
Peter Piro Rm# 361
Jamaica Plain MA 02130

Client

State Lab Institute
Purchasing Rm# 208
305 South Street
Jamaica Plain MA 02130

SECTION 11: GENERAL INFORMATION

This calibration was performed in Troemner's High Precision Level I Mass Metrology Laboratory at 201 Wolf Drive, Thorofare, New Jersey 08086 unless otherwise noted on page one. The internal procedures used are CAL-CLASSI, CAL-MMAP, and NIST HB145.

SECTION 12: DEFINITIONS AND TERMS

MASS IN A VACUUM - The mass of a weight as if it were measured in a vacuum. Also known as True Mass.

MASS IN AIR - The conventional value of the result of weighing in air, in accordance to International Recommendation OIML D 28. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of density $8000 \text{ kg}\cdot\text{m}^{-3}$ which it balances in air of a density of $1.2 \text{ kg}\cdot\text{m}^{-3}$.

AS FOUND MASS IN A VACUUM - The measured value of the mass(es) as they were received by Troemner.

AS LEFT MASS IN A VACUUM - The measured value of the mass(es) after they were adjusted, repaired or replaced when necessary. The As Found Mass in a Vacuum will equal the As Left Mass in a Vacuum if the mass(es) did not require adjustment, repair or replacement.

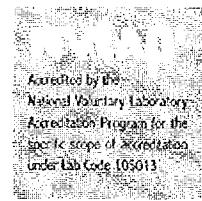
NOMINAL MASS - The mass value as marked on the weight.

CORRECTION - The difference between the mass value of a weight and its nominal value. A positive correction indicates that the mass value is greater than the nominal value by the amount of the correction.

AS FOUND CONVENTIONAL MASS CORRECTION - The conventional correction of the result, as it was received by Troemner, of weighing in air in accordance to International Recommendation D 28. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of density $8000 \text{ kg}\cdot\text{m}^{-3}$ which it balances in air density of $1.2 \text{ kg}\cdot\text{m}^{-3}$. If the customer requires cleaning prior to calibration, the after cleaning correction would be reported.

AS LEFT CONVENTIONAL MASS CORRECTION - The conventional correction of the result, after adjustment, repair, or replacement of weighing in air in accordance to International Recommendation D 28. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of density $8000 \text{ kg}\cdot\text{m}^{-3}$ which it balances in air density of $1.2 \text{ kg}\cdot\text{m}^{-3}$. The As Found will equal the As Left Conventional Mass Correction if the mass(es) did not require adjustment, repair or replacement.

(continued on next page)



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Page 11 of 11 Pages
Weight XXXXXXXXXX
Certificate Number XXXXXXXXXX
Date of Calibration 22-SEP-2010

NAME AND ADDRESS OF CUSTOMER

End user

State Lab Institute
305 South Street
Peter Piro Rm# 361
Jamaica Plain MA 02130

Client

State Lab Institute
Purchasing Rm# 208
305 South Street
Jamaica Plain MA 02130

SECTION 12: DEFINITIONS AND TERMS (continued)

UNCERTAINTY - The standard deviation associated with the result of the measurement that characterizes the dispersion of the values that could reasonably be attributed to the measurand. The uncertainty is calculated in accordance with NIST TechNote 1297 / UKAS M3003 using a coverage factor of $k = 2$ ($k = 2$ defines an interval having a level of confidence of approximately 95 percent). The uncertainty does not include possible effects of magnetism.

TOLERANCE - Defines the limits in which the correction value and the uncertainty must fall to meet the tolerance specification for the given Class.

AS FOUND CONVENTIONAL MASS VALUE - The measured value of the mass(es) as they were received by Troemner, of weighing in air in accordance to International Recommendation OIML D 28. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of density 8000 kg·m⁻³ which it balances in air density of 1.2 kg·m⁻³. If the customer requires cleaning prior to calibration, the after cleaning value would be reported. F denotes Out of Tolerance Weight.

AS LEFT CONVENTIONAL MASS VALUE - The measured value of the mass(es) after they were adjusted, repaired or replaced when necessary, of weighing in air in accordance to International Recommendation OIML D 28. For a weight taken at 20° C, the Conventional Mass is the mass of a reference weight of density 8000 kg·m⁻³ which it balances in air density of 1.2 kg·m⁻³. The As Found will equal the As Left Conventional Mass Value if the mass(es) did not require adjustment, repair or replacement.

ASTM E617-97 - Weights meet the tolerance specification for ASTM E617-97. Weights 2kg - 1g screened for magnetism using a Gaussmeter.

SECTION 13: ADDENDUM

Weight(s) Pass Visual Inspection